

No. 10.— *The Resident Birds of Guadeloupe.*

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INTRODUCTION.

DURING the summer and early fall of 1914 I visited, in the interest of the Museum of Comparative Zoölogy, Guadeloupe in the French West Indies.

On the way and for the first few days while on Guadeloupe I was fortunate in having the company of Mr. F. R. Wulsin. We had several opportunities to make short ornithological excursions on some of the islands to the north of Guadeloupe. On the homeward voyage the ship was detained at St. Croix and several days were spent there in the field.

I remained on Guadeloupe from June 22nd to September 12th. In order to cover all the main regions of Guadeloupe and Grande Terre I spent four days or more in each of the following localities:—Pointe à Pitre, Goyave, Basse Terre, Ste. Claude, the Soufrière, Vieux Habitants, Cluny, Ste. Rose, Soffire, and St. François. My interest was chiefly in the land-birds and I was fortunate in finding all of the existing resident species.

Guadeloupe possesses a local museum, the Musée L'Herminier, in the town of Pointe à Pitre. Dr. F. L'Herminier was undoubtedly the greatest naturalist who ever lived on Guadeloupe; a student of the famous Blainville, he applied the best methods of his time to the study of Antillean bird life. Unfortunately in the great Pointe à Pitre fire of 1844, all his work on Guadeloupe birds was swept away. Lafresnaye (Rev. zool., 1844, p. 168) in describing some of L'Herminier's specimens comments briefly on this disaster:—

“Quoique nous eussions déjà ces trois espèces, que nous devions à l'obligeance de M. L'Herminier, avant l'affreuse catastrophe de la Pointe-à-Pitre, nous ne les avions pas publiées parce qu'il nous avait confié son projet de publier une Faune ornithologique de la Guadeloupe. Depuis lors, il nous y a autorisé, tout en nous apprenant que loin de renoncer à son projet, et malgré la perte immense pour lui de tous ses oiseaux, soit montés, soit dans l'alcool, de tous ses livres et de toutes ses notes, il s'occupe avec une nouvelle ardeur de le mettre à exécution.”

A short time after the fire, the Musée L'Herminier was built. In 1876 Ober visited the island and remarked, (*cf.* Lawrence, Proc. U. S. N. M., 1878, 1, p. 452):—

"Few birds are, as yet, in the museum but there are very excellent and complete collections of crustacea, etc., and many fine specimens of aboriginal implements."

I found the bird collection had so increased that it was larger than all of the other collections. Three well-mounted specimens of *Aestrelata diabolica* were included in it. Unfortunately most of the specimens were without data or records of their receipt.

I have omitted all reference to the birds noted at St. Croix except when they have direct bearing on the Guadeloupean birds. The West Indian avian fauna is rapidly being destroyed and for that reason it seems advisable to include here a complete record of the birds collected rather than to give simply an account of the more important studies, such as those relating to *Aestrelata haesitata*, *Cichlherminia herminieri*, and *Coereba dominicana*. Clark (Proc. Bost. soc. nat. hist., 1905, 32, p. 203-312) has already summarized the general conditions of bird distribution in the Lesser Antilles.

TOPOGRAPHY.

Guadeloupe consists physiographically of two distinct parts:—Guadeloupe proper, a rugged mass of volcanic formation and Grande Terre, a flat limestone island separated from the former by a sluggish tidal water-way, La Rivière Salée. The adjacent islands of Désirade and Marie Galante are similar in structure to Grande Terre while the small archipelago called Les Saintes is volcanic like Guadeloupe proper. Guadeloupe and Grande Terre taken together are about forty miles in their greatest length and the same in their greatest width.

The whole surface of Guadeloupe is broken up into peaks and is cut by deep valleys making walking for any distance very difficult. Many of the hills reach to four thousand feet or over. The Soufrière for instance, is 4863 feet high. Its summit is wreathed with rain clouds throughout most of the year. The slopes on the mountainous core of this island exhibit many contrasts. There are at least four distinct life-zones:—

(1) Lowland savannahs. Great areas of grass-and scrub-land skirt

the coast of Guadeloupe and extend over the whole of Grande Terre. These regions are now for the most part under cane cultivation. A few swift flowing streams cross the plantations, but only the Grande Rivière in the north is navigable for more than a few hundred yards. The monotony of the grasslands is broken on the east coast by small stands of timber and on the west coast by broad outcrops of volcanic rocks. Marshes are rare in this belt and ponds even more so. On Grande Terre the soil is sandy and calcareous and the absence of water makes a hot and dusty landscape.

(2) Uplands of hardwood forest. The savannahs merge gradually into the uplands which are generally covered with medium sized deciduous trees. This belt varies in width from one to four miles and in several places such as at Ste. Marie, Ste. Rose, and Trois Rivières it encroaches through the grassland area and extends to the ocean.

(3) Rain forest. The dense tropical forest starts abruptly at about 1500 ft. and covers the greater part of the central region of Guadeloupe proper. It is almost impenetrable. While its bird fauna is characteristic, the number of species is small.

(4) Mountain barrens. Lastly the wind swept country above the tree line begins at about 4000 feet. It covers relatively a very small proportion of the island and is almost devoid of life.

THE VERTEBRATE FAUNA.

The vertebrates are represented in Guadeloupe by a very small number of species. An agouti (*Dasyprocta noblei* G. M. Allen), a racoon (*Procyon minor* Miller) and four or five species of bats comprise the entire indigenous mammalian fauna. The introduced Mongoose (*Mungos birmanicus* (Thomas)) is everywhere abundant and it is due to its depredations that the land vertebrates are so rapidly disappearing. The *Anolis ferreus* Cope is the commonest reptile. *Iguana delicatissima* Laurenti, and the Ground Lizard (*Ameiva cineracea* Barbour & Noble) are found today only on the small islands off the coast. A skink (*Mabuya maboia* Duméril & Bibron) may likewise have been completely extirpated from the mainland of Guadeloupe by the Mongoose. Two geckos, *Sphacrodactylus fantasticus* (Duméril & Bibron) and *Thecodactylus rapicaudus* (Houttuyn) because of their secretive habits are not commonly found, but they may be locally abundant. The two snakes, *Typhlops lumbricalis*

(Linné) and *Alsophis leucomelas* (Duméril & Bibron) formerly occurring on the island are now both extinct, but a species of Couleuvre (*Alsophis sanctorum* Barbour) closely related to the latter is peculiar to Les Saintes and is still found abundantly because the Mongoose has not been introduced into these islands. The Grenouille (*Eleutherodactylus martinicensis* Tschudi) and the introduced Crapaud (*Bufo marinus* Linné) are locally numerous on Guadeloupe. As in other Lesser Antilles the fresh-water fishes are few. The number of species of resident birds is noteworthy because the list is so short. Migrants are also few but deserve special mention.

PRESENT STATUS OF BIRD LIFE.

There are three classes of birds which are not fully considered under the annotated list and which I shall discuss here: (1) extinct species, (2) probable resident birds, mostly water-birds, not collected during the trip, and (3) migratory species.

The parrots (*Ara guadeloupensis*, *Anodorhynchus purpurascens*, *Amazona violaceus*, and *Conurus labati*) were the earliest Guadeloupe land-birds to be completely exterminated. The old French accounts show that the natives killed them in numbers, but even so it is hardly possible that their annihilation was due wholly to human agency. *Fulica caribaea*, and *Rallus crepitans* have probably been extirpated by the Mongoose, at least they have not been taken by the native *chasseurs* for a long time. I saw at Cluny, on several occasions, a Mongoose far out in the middle of the swamp jumping from log to log in its eager hunting. The Diablotins, or Black-capped Petrels, have been extirpated from Guadeloupe, probably through several causes.

There are several birds not noted during my stay which may nest on Guadeloupe. The Black Hawk (*Urubitinga anthracina*) and the Chicken Hawk (*Buteo antillarum*) have both been observed by Pointe à Pitre sportsmen but it is doubtful if either of these were more than stragglers. I was informed that the Redstart (*Setophaga ruticilla*) occurred throughout the year but my own observations did not confirm this rather improbable statement. If the fishermen may be relied upon, the following sea-birds breed on the outlying islets of Les Saintes and Tête Anglais:—*Phaethon aethereus*, *Sula leucogastra*, *Sula piscator*, *Sterna maxima*, and *Anous stolidus*. The Yellow-crowned Night Heron (*Nyctanassa violacea*) breeds regularly just east of Ste. Rose.

There are many migrants which are either erratic wanderers or regular visitants and which pass over Guadeloupe, but the information regarding them is usually quite unreliable. The list of birds observed by L'Herminier (Proc. U. S. N. M., 1879, 1, p. 450-451), between 1827 and 1844, is very large, and I doubt if some of the species recorded have been found on Guadeloupe in recent times. Winch (see Cory, Auk, 1891, 8, p. 48-49) and Ober (see Lawrence, Proc. U. S. N. M., 1879, 1, p. 452-462) both collected several of the migrants. Their lists, *plus* my own observations, include the following species which though not mentioned in the annotated list are nevertheless probably of regular occurrence:— *Sterna antillarum*, *Ereunetes pusillus*, *Pisobia minutilla*, *P. maculata*, *Actitis macularia*, *Hedodromas solitarius*, *Aegialitis semipalmata*, *Ceryle alcyon*, *Sciurus noreboracensis*, *Wilsonia canadensis*, *Scotophaga ruticilla*. Probably other species, chiefly herons and sea-birds visit the island as stragglers. I saw on July 22nd in a pond near Cluny a duck which I believe was *Dendrocygna discolor*. Many other species of ducks visit the island on migration. Mr. Delphin Duchamp, a prominent planter, informed me that the Ani (*Crotophaga ani*) and the White-crowned Pigeon (*Columba leucocephala*) have been occasionally seen on Guadeloupe after a hurricane. Other species very probably reach the island under similar circumstances.

ACKNOWLEDGEMENTS.

It gives me pleasure to acknowledge with many thanks the kind assistance of His Excellency, Monsieur Lauret, the Governor of Guadeloupe. Monsieur C. Thionville of his staff was also especially considerate. I am indebted to Monsieur D. Duchamp and Monsieur Riese for many favors while visiting their plantations.

During the preparation of this paper I have received assistance from Messrs. W. De W. Miller, John T. Nichols, and Charles H. Rogers of the American Museum of Natural History, who have examined specimens in that museum at my request; to the officers of the United States National Museum, the Philadelphia Academy of Natural Sciences, and the Field Museum of Natural History I am also indebted for their help in straightening out the status of *Tiaris bicolor omissa*; and I take great pleasure in thanking Mr. Outram Bangs and Dr. Thomas Barbour for explaining many technicalities of description and literature.

ANNOTATED LIST OF SPECIES.

1. *PODILYMBUS PODICEPS ANTILLARUM* Bangs.

Chien d'eau.

One adult male from Cluny, near Ste. Rose, July 25th, and two young birds in the down, from the same locality, July 20th and 24th.

The series of Antillean Pied-billed Grebes in the Museum of Comparative Zoölogy is much too small to determine satisfactorily the status of this race. I do not believe the evidence brought forward by Todd (Ann. Carnegie mus., 1916, 10, p. 170) is sufficient to consider that the Pied-billed Grebe breeds in the Antilles the same as the typical mainland form. Wetmore (Bull. 326, U. S. dept. agr., 1916, p. 17) has recently recognized *Podilymbus podiceps antillarum* as a valid race and I am inclined to regard it such until sufficient material has been brought together to allow an intensive study.

The Pied-billed Grebe still breeds on Guadeloupe although nearly extirpated by the Mongoose. Like the gallinules and rails, this species, formerly common, is now very rare. I found it breeding in only one locality, Grand Étang, Cluny. Several sportsmen of Pointe à Pitre told me that it only occurs in those lakes where there is an island to protect it from the stealthy approach of the Mongoose.

2. *FRIGATA MAGNIFICENS* Mathews.

Mansfeny.

One adult male from Ste. Rose, July 21st.

The only Frigate-bird I succeeded in shooting was flying over a fresh-water pond and diving at intervals for fish. I saw many others off the coast. The fishermen told me that the Mansfeny breeds regularly on Tête Anglais.

3. *BUTORIDES VIRESCENS MACULATUS* (Boddaert).

Qui-o. Crabier Vert tacheté.

One adult from Ste. Rose, July 20th, seven adult and half-grown specimens from Goyave, taken during the end of August; and six

adult and half-grown birds from Les Saintes taken during the first week in September.

Oberholser (Proc. U. S. N. M., 1912, 42, p. 529-577) has recently revised the subspecies of *Butorides virescens* and has described several new Antillean races. He refers the Guadeloupe bird to *B. v. cubanus* (Oberholser, *Loc. cit.*, p. 559-561) and erects another new race, *B. v. christophorensis* between the Guadeloupe bird and the northern race, *B. v. cubanus*.

I have compared a large series of specimens from nearly every island in the Antilles with the eighteen specimens taken on Guadeloupe and St. Croix and am convinced that the green herons from Cuba to Grenada all belong to one subspecies. Messrs. Bangs and Barbour have studied this series with me and have called my attention to the fact that the series from Guadeloupe includes within its range of variation, in color and measurements, the distinguishing characters of four of Oberholser's new subspecies:—namely, *B. v. christophorensis*, *B. v. dominicanus*, *B. v. lucianus*, and *B. v. grenadensis*. I saw in early July a green heron flying a considerable distance off the north shore of Guadeloupe and from the bird's position high in the air, both Antigua and Dominica must have been plainly visible. It seems very probable that green herons wander from island to island throughout the Greater and Lesser Antilles.

The Antillean race of green heron feeds in both fresh- and salt-water swamps but for some reason it is only locally abundant throughout Guadeloupe and Grande Terre. In general its habits are like those of our own Green Heron (*B. v. virescens*) except that the Antillean race has adapted itself to lizard hunting. On both St. Croix and Guadeloupe I have observed the green heron standing motionless in the center of a dry field watching for an Anolis. It is surprising to see this bird of the twilight and the swamps apparently dozing in the middle of an open field while the tropical sun glares down from directly overhead.

4. CERCHNEIS SPARVERIA CARIBBAEARUM (Gmelin).

Gli-Gli.

Seven adults from various localities on Guadeloupe and Les Saintes: two from Ste. Rose July 13th, one from Ste. Claude June 26th, one from Goyave September 6th and three from Les Saintes September 15th.

The Sparrow Hawk is a common bird throughout the whole of the lowlands of both Guadeloupe and Grande Terre. It is the only resident hawk although several others occur as stragglers. In habits it resembles *Cerchneis sparverius sparverius* but seems more sluggish in flight. During the heat of the day it glides almost wearily over the plantations or dozes on some *palmiste* in the full glare of the sun.

5. IONORNIS MARTINICUS (Linné).

Poule d'eau à Cachet Vert.

One adult purchased at La Moule.

This specimen was taken sometime during 1913. It was the last Purple Gallinule that had been seen on Grande Terre. As with the rails, this species has probably disappeared from Guadeloupe because of the Mongoose.

6. GALLINULA CHLOROPUS CACHINNANS Bangs.

Poule d'eau à Cachet Rouge.

Two adults, a male and a female from Grand Étang, Cluny, near Ste. Rose taken July 24th.

As already mentioned the gallinules are almost extinct in Guadeloupe. I do not believe there were more than three pair breeding in the Grand Étang. Bangs (Proc. N. E. zool. club, 1915, 5, p. 93-99) has recently revised the American forms of *Gallinula chloropus* and has referred the Guadeloupe bird to the northern race. The measurements of the two specimens noted above are included in his revision.

7. ACTITIS MACULARIA (Linné).

L'Alouette de Mer.

One adult, a female, from Ste. Rose, July 15th.

On the north shore of Guadeloupe near Ste. Rose I found the Spotted Sandpiper the first week in July. It is very likely that the

species is a resident. The bird seeks out the lowland streams which are not too overgrown with foliage. In such regions it is common.

8. *LARUS ATRICILLA ATRICILLA* Linné.

Mauve à Tete Noir.

A few birds observed near Goyave, the latter part of August, but no specimens taken until September 16th at the island of St. Croix.

A comparison of a fair series of Laughing Gulls from the Lesser Antilles, Greater Antilles, and Bahamas with a large series from the mainland of North America shows conclusively that the island birds are smaller than the mainland ones. No color difference is apparent but the decided difference in size warrants the referring of the Laughing Gulls inhabiting the coast of North America, to a distinct race, which may be known as *Larus atricilla megalopterus* (Bruch).

Although there is some uncertainty as to the priority of this name, it seems most probable that Bruch (Journ. f. ornith., 1855, p. 287) was the first to describe the North American Laughing Gull. Linné's description was based upon Catesby (Nat. hist. Carol., 1733, 1, p. 89) and Catesby only mentions the Bahaman bird. It seems probable that Bruch when describing *A. catesbyi* and *A. micropterus* was discussing the Bahaman bird. To be sure Bruch quotes Bonaparte as the authority for these names but when Bonaparte a year later (Comp. rend. Acad. sci., 1856, 42, p. 771) published upon the birds he gave Bruch as the authority. In setting up *Atricilla* as a generic name Bruch was compelled by the custom of the time to use a new name for *Larus atricilla* Linné, to avoid duplicating names. *Atricilla catesbyi* refers, then, to the bird of Linné, in other words to the Bahaman-Antillean race. The next bird described by Bruch was *A. megalopterus* and although the description (Bruch, *Loc. cit.*, p. 287) is not good, he gives the type-locality as "Peru und der Mexicanische Meerbusen." It is at least conservative to refer this name to the North American race. The name *A. micropterus* cannot refer to this race because Bruch (*Ibid*, p. 287) gave it to a species smaller than *A. catesbyi*, in other words smaller than the Bahaman-Antillean race.

The difference in size between *L. a. atricilla* and *L. a. megalopterus* is shown in the following table.

Larus atricilla atricilla.

M. C. Z.	Sex	Locality	Wing	Tail	Exposed Culmen	Tarsus
14704	♂	Antigua	302	121	41	45
14699	♂	"	303	123	39	43
14702	♂	"	294	122	38.5	42
112927	♂	Union Isl.	301	116	37	41
112926	♂	" "	295	118	38	40
66611	♂	St. Croix	311	122	41.5	43
40181	♂	Bahamas	310	119	42	45
11842	♂	"	315	118	41.5	46
67424	♀	Cuba	303	116.5	38.5	42

Larus atricilla megalopterus.

13832	♂	Florida	337	121	42	49
13839	♂	"	343	124	41	45
30571	♂	"	334	130	43	48
13837	♂	"	351	128	40	47
13836	♂	"	339	123	40	49
13834	♂	"	338	122	41	48
3169 ¹	♂	"	348	131	43	50
30810	♂	New Jersey	349	131	42	48
3063 ¹	♂	Georgia	337	125	42	49
42175	♂	"	356	132	40	46
3062 ¹	♀	"	332	123	42	44.5
13835	♀	Florida	322.5	118.5	39	48.5
30691	♀	"	326	121	40	47

9. STERNA DOUGALLI DOUGALLI Montagu.

Petite Mauve.

One adult female from Les Saintes, September 10th.

The Roseate Tern is seen rather rarely about the coast of Guadeloupe, but on the outlying islands it is common. The species is reported by the natives to breed on Les Saintes to the south and on Tête Anglais to the north of Guadeloupe.

¹ Coll. E. A. and O. Bangs.

10. STERNA FUSCATA FUSCATA Linné.

Mauve à Manteau Noir.

One adult female from Les Saintes, September 10th.

The fishermen report that this species also breeds on some of the outlying islets of Guadeloupe.

11. ANOUS STOLIDUS STOLIDUS (Linné).

Mwen. Noddi.

One adult male from Les Saintes, September 10th.

Like the Roseate and Sooty Terns, the Noddy is rarely seen about the mainland of Guadeloupe but is reported to breed on Les Saintes, Tête Anglais, and possibly elsewhere nearby.

12. AESTRELATA HAESITATA (Kuhl).

Diablotin.

One of the chief reasons of my visit to Guadeloupe was to obtain information about the Black-capped Petrels. A few days after landing I had the good fortune to meet Monsieur C. Thionville, President of the Club des Montagnards. The name Diablotin was associated in his mind with the past history and early colonization of the French in Guadeloupe. He immediately began to make inquiries about Basse Terre but without much success. Finally we made a trip together high up into the hills of Matouba to visit an old negro called Père Lownisky living on the slopes of the Soufrière. This old man in his early youth had often hunted Diablotins and had joined several of the large parties which had camped on the Nez Cassé to dig out the Diablotins from their burrows. Since Père Lownisky had spent his entire life in Matouba he knew all the old breeding grounds of the Black-capped Petrels. He told us that the Diablotins formerly bred on the north and northeast slope of Nez Cassé. The birds arrived in late September and the period of incubation for the colony as a

whole extended through November and December. The young birds remained in the nest until March. He asserted positively, however, that no Diablotins had been heard or seen since the great earthquake of 1847. The old negro remembered that earthquake for during it the whole side of Nez Cassé, on which the Petrels bred, had collapsed and fallen into the valley. Père Lowinsky ended his exposition by dramatically raising his withered hand, exclaiming again in his "creole" French that the Diablotins had not been heard of for nearly seventy years,— "Jamais! — Jamais!"

A few days later I penetrated the "Grand Bois" as far as the old breeding grounds of the Diablotins. A sheer wall of basalt arose for several hundred feet finally losing itself in a bank of rain clouds. Very little vegetation clung to the steep sides of the cliff. My guides seemed to think it possible to scale the cliffs by the help of ropes. But remembering the old negro's statements in regard to the breeding season I did not make the attempt.

During the rest of my stay on the island I could get no more accurate information about the Diablotins. Several of the natives believed queer noises which they had heard nightly some years ago to be the call of the Diablotin.

The vast jungle covering the mountainous core of Guadeloupe is nearly impenetrable and entirely unexplored. While it is possible that a Black-capped Petrel may still breed on some isolated peak in the heart of Guadeloupe it is significant that not a single bird has actually been seen in the vicinity of the island in all these years.

13. AESTRELATA DIABOLICA (Lafresnaye).

Diablotin.

Upon my return to Cambridge I learned that the Lafresnaye collection (transferred from the Boston Society of Natural History to the Museum of Comparative Zoölogy) contained two cotypes of Lafresnaye's, *Procellaria diabolica*¹ and two other specimens of Black-capped Petrel somewhat similar to the cotypes but smaller. These specimens were all collected in Guadeloupe by L'Herminier in 1842. On the label of one of the smaller pair (Lafr. coll. No. 8003) the data reads Maupingue ou Maubingue, and on the other (Lafr. coll. No. 8004) Maupingue ou Maupingue.

¹ The third cotype (Lafr. No. 8001) was exchanged in 1886 with Prof. Alfred Newton for a specimen of the now extinct *Aestrelata jamaicensis* of Jamaica.

Lafresnaye (Rev. zool., 1844, p. 168) in his original description of *Procellaria diabolica*, referring to the larger specimens, says:—

“Une espèce de Petrel, le *Petrel Diable*, du père Labbat, Diablotin à la Guadeloupe, *Procellaria diabolica* L’Herminier, qui y arrive vers la fin de septembre, y niche en décembre dans les Falaises; une seconde espèce, en tout semblable de plumage à celle-ci, et n’en différant que par une taille moindre, y arrive à une autre époque, niche dans les mêmes falaises, mais à un étage différent en hauteur, ce qui les fait distinguer à la Guadeloupe par les noms de Petrels des hauts et Petrels des bas. Ces deux oiseaux seront pris pour la même espèce par tous les ornithologistes qui les posséderont sans renseignements sur leurs mœurs. Cependant M. L’Herminier les regarde comme constituant deux espèces bien distinctes, différant essentiellement de mœurs et d’époque de passage. Mais n’anticipons pas sur les futurs documents que nous promet notre savant collègue, et qui auront un bien autre intérêt sous sa plume et racontés *de visu*.”

The two pairs of Black-capped Petrels from the Lafresnaye collection are different from each other not only in size but in coloration and in shape of the nostril tubes. The smaller ones have the grey of the cap extending down the back of the neck and not terminating abruptly on the nape as in the larger birds, and the nostril tubes of the smaller birds are higher and end more abruptly than those of the larger specimens. In this respect as also in size the smaller birds are similar to *Aestrelata jamaicensis*. Each pair represents, I believe, a distinct species of *Aestrelata*.

Which species, then, is *Aestrelata haesitata*? This is a difficult question to decide because of the uncertainty of the original description. Kuhl (Beitrag zur zoologie, Frankfurt, A. M., 1820, p. 142) described a petrel “in Museo Bullokiano, nunc in Temminkiano” and calculated his measurements in terms of the “pollex.”

If we assume that the pollex was the Frankfurt a. M. inch of that time, as determined by the Bureau of Standards at Washington and sent me by letter, it is then possible that Kuhl’s specimen could be referable to either of the Guadeloupe species under consideration or better still to neither. Dr. Stejneger, however, recently told Mr. Bangs that Kuhl was a student of Temminck and would very likely have used the French system. Changing Kuhl’s measurements from French inches (Ridgway, Nomenclature of colors, 1886, pl. 17 note) into millimeters and comparing them with the measurements of the Guadeloupe birds we find the figures more closely approximating the measurements of the small than of the large species. But

still there is so great a discrepancy in the measurements, those of wing and tail being like the large bird, those of bill and tarsus like the small, that it is impossible to determine to which species Kuhl's specimen really should be referred. Since Lafresnaye described the large species as *Aestrelata diabolica* I prefer to restrict the name *Aestrelata haesitata* to the small Black-capped Petrel of Guadeloupe. The following table shows the difference in size between the two species.

Measurements in Millimeters.

	Wing	Tail	Bill to Angle of Mouth	Tarsus	Middle Toe (including Claw)	Culmen
Kuhl's specimen computed by Pied du Roi ¹	306.3	162.1	42.9	38.1	56.1	—
Kuhl's specimen computed by the Frankfurt a. M. inch ²	268.71	142.26	37.54	33.58	49.39	—
<i>Aestrelata diabolica</i> M. C. Z. 73222	287	124	46.5	43	55	36
<i>Aestrelata diabolica</i> M. C. Z. 73221	288	135	46	42	55	35.5
<i>Aestrelata haesitata</i> M. C. Z. 73219	264	113.5	42	38	52	32.5
<i>Aestrelata haesitata</i> M. C. Z. 73220	276	116.5	41.5	37.5	51	33
<i>Aestrelata jamaicensis</i> M. C. Z. 73218	278	128.5	40	38	51.5	32

L'Herminier's list of Guadeloupe birds (*cf.* Lawrence, Proc. U. S. N. M., 1878, 1, p. 451) includes both species of Guadeloupe Black-capped Petrels under the names *Procellaria diabolica* L'Herm. and *Procellaria mauping* L'Herm. These species are marked with a cross to indicate that L'Herminier also found them on Martinique. I have no other information in regard to the Black-capped Petrel in Martinique.

Investigation will probably show that *Aestrelata diabolica* and not *Aestrelata haesitata* as here restricted is the American Black-capped Petrel mostly represented in collections. Mr. J. T. Nichols has

¹ Ridgway, Nomenclature of colors, 1886, pl. 17 note.

² Determined by Bureau of standards.

kindly furnished the following measurements of the specimens in the collections of the American Museum of Natural History and of Jonathan Dwight, Jr.

Measurements in Millimeters.

	Wing	Tail	Tarsus	Culmen	Nostril Tubes	Remarks
Amer. Mus. 6212 Type of <i>P. meridionalis</i> Lawr. Florida Coast	293	133	35	32	Short ending abruptly	Sooty, not greyish above, crown scarcely marked off by lateral white from back
Amer. Mus. 46145 Long Island July 1850	—	—	35	35	Low ending gradually	Bill and foot only
Amer. Mus. 11212 ♂ Central Park Zoo. Jan. 8, 1912. CAPTIVE bird	277	143	38	31.5	Low ending gradually	Back grey, rump darker, nape broadly white marking off cap from back
Coll. J. D. Jr. Blacksburg, Mont- gomery Co., Va. Aug. 31, 1893, E. A. Smyth Jr.	290	146	35	32	Low	Nape whitish marking off cap from back. Cap and back sooty lat- ter somewhat greyish
Coll. J. D. Jr. Cayuga Co., N. Y. Sept. 1893	290	143	37	35	Low	Back and cap sooty sharply marked off by white nape

It appears from this table that all of the birds in these collections except *P. meridionalis* Lawr. are referable to *Aestrelata diabolica* Lafresnaye. The actual measurements of Lawrence's type are somewhat larger than those considered typical *Aestrelata haesitata* as represented by the two specimens in the Museum of Comparative Zoölogy, but the characters of bill and coloration make it referable to that species.

I have included in the table the measurements of *Aestrelata jamaicensis* to bring out the similarity between that species and *Aestrelata haesitata*. It would be rash to consider *Aestrelata jamaicensis* simply a color phase of *Aestrelata haesitata*. Yet further study may reveal that these two species are very closely related.

During the course of my investigation of the status of *Aestrelata*

haesitata and *Aestrelata diabolica* one more point came to light which may be of interest. Although Temminck (Pl. col., 1826, no. 416) wrote a brief description of *Aestrelata haesitata* he did not figure that species. His plate represents a petrel with grey upper tail-coverts similar to *Aestrelata cervicalis* Salvin.

14. COLUMBA SQUAMOSA Bonnaterre.

Ramier.

Seven specimens, adult and half-grown birds, from Ste. Claude, July 2nd, from Ste. Rose July 13th, and from Goyave, August 31st.

The Ramier is the principal game-bird of Guadeloupe. It is a bird of the rain forest and is found only high up on the "roof of the jungle." In the early morning and late afternoon scattered flocks dash by high over head making for their favorite feeding grounds among the taller fruit trees upon the mountain slopes. The native hunters learn to know these routes of daily migration and kill great numbers of the Ramier for market.

15. ZENAIDA ZENAIDA AURITA (Temminck & Knip).

Tourterelle.

One adult female from Goyave September 1st.

The Wood Dove is not rare in Guadeloupe but it is less abundant than *Geotrygon mystacea* in company with which it is sometimes found. But unlike the latter, it is widely spread over Guadeloupe and Grande Terre. It prefers the water's edge and is rarely met with in the mountains. In the open fields, especially those that are bordered with Mangrove swamps, the Tourterelle is common. This environment is very different from the hot, sandy hill-sides frequented by the closely related *Zenaida z. lucida* Noble (Proc. N. E. zool. club, 1915, 5, p. 101-102) of St. Croix. The Tourterelle thrives well in captivity, and is perhaps the commonest cage-bird seen in Guadeloupe.

16. *CHAEMEPELIA PASSERINA TROCHILA* (Bonaparte).

Ortolan.

Twelve adult and half-grown specimens from Goyave, August 25th to September 1st.

On the east coast of Guadeloupe, in the lowlands of the north coast, and all over Grande Terre, the little Ground Dove is abundant. It is the commonest bird in the cane-fields, and in spite of its small size the natives snare great numbers for food.

Long after the young have been fully fledged, the parent birds stay with them. These family groups feed together about the edges of the cane-fields. While on the island I never saw an Ortolan that was not associated with its family flock.

17. *GEOTRYGON MARTINICA* (Linné).

Perdrix Rouge. Perdrix Gris.

- One adult female from Goyave, August 20th.

Few of the *chasseurs* of Guadeloupe know that the Perdrix Rouge is the male and the Perdrix Gris the female of one and the same species, but all agree that both are nearly extirpated from the island. The habits of this species are similar to those of *Geotrygon mystacea* but unlike that species it seems to have been unable to adapt its habits to the introduced Mongoose. Today it is probably the rarest bird on Guadeloupe but fifteen or twenty years ago it was abundant and was considered excellent game.

18. *GEOTRYGON MYSTACEA* (Linné).

Perdrix Croissant.

Fifteen adults from Nez Cassé, Ste. Rose, and Goyave, taken late in June, in July, and August.

Since the introduction of the Mongoose all of the species of Perdrix have suffered because they build their nests near the ground and

within easy reach of even a beast which is strictly terrestrial. But the *Perdrix Croissant* is still locally abundant in many of the mountainous parts of Guadeloupe. Like the other species, it is a rain forest bird, frequenting the dense wet undergrowths. The dense woods, however, form an easy approach for the *Mongoose*. But the *Perdrix Croissant* seems to be slowly adapting itself to new conditions. Towards evening small flocks fly down from the mountains to feed with the *Tourterelles* and *Ortolans* in the open clearings about the old cane-fields. My guides informed me that this habit had been recently acquired. It certainly helps to protect the birds from the stealthy approach of a *Mongoose*.

The *Perdrix Croissant* is ranked throughout Guadeloupe, as one of the best game-birds. The natives formerly caught them with hoops fitted with wire snares, and brought great numbers to market. During my stay on the island I never saw a single *Perdrix* sold in a village market.

19. *COCYZUS MINOR DOMINICAE* Shelley.

Coucou Manioc. Oiseau de Pluie.

Four adults from Ste. Rose, July 13th-19th, six adult and half-grown specimens from Goyave, August 20th, September 1st.

I have compared a series of eight specimens from Dominica with eight adults from Guadeloupe and have not been able to find any appreciable difference between them. My Guadeloupe birds, in spite of the fact that they are in the worn summer plumage, seem to be a trifle darker than the Dominica birds and they also average slightly larger. But I prefer to regard this rather a tendency toward differentiation than a real racial distinction. The Guadeloupe birds measure:—wing 142.62; tail 163.69; exposed culmen 29.14; tarsus 29.74.

Locally distributed throughout the lower uplands of Guadeloupe, the Cuckoo is a conspicuous bird because of its slow and clumsy movements. It is confined to the low wooded hills, and not met with at all in the Mangrove swamps where I had been led to expect it.

The only cry I heard was a resonant guttural chuckle. On dull days this peculiar call is often heard in the hills. The natives believe the call to be a sure sign of heavy rain and hence they call the bird l'Oiseau de Pluie.

20. *STREPTOCERYLE TORQUATA STICTIPENNIS* (Lawrence).

Martin Pecheur. Pie.

One adult male from Goyave, August 27th.

The Martin Pecheur is found very locally distributed over the whole of Guadeloupe. It frequents the mountain torrents and pools, flying overland from one stream to another.

At Goyave I observed two Martin Pecheurs but was able to secure but one. At least one pair bred in the spring of 1914, in the high sand banks six miles up the Rivière de Goyave. The nesting hole resembled that of *Streptoceryle alcyon*, but was of course much larger.

21. *SPEOTYTO GUADELOUPENSIS GUADELOUPENSIS* Ridgway.

Coucou.

One adult specimen, which I was told came from Marie Galante, presented by the Musée L'Herminier. It now bears the catalogue number M. C. Z. 66347. The type of the species is M. C. Z. 74167.

The Burrowing Owl was formerly found on the cliffs of Marie Galante, but, since the introduction of the Mongoose some twenty years ago, it has completely disappeared. I could find no evidence of its ever having existed on Guadeloupe, Grande Terre, or Les Saintes.

The Musée L'Herminier had five well-mounted specimens of this species. Unfortunately they bore no data nor was there any record of their presentation to the Musée. The conservateur, however, assured me that they came from Marie Galante many years ago.

22. *NEPHOECETES NIGER JAMAICENSIS* (Ridgway).

Gros Martinet Noir. Hirondelle de Montagne.

Two adult males and one female from Goyave, September 1st.

It seems advisable to refer the Guadeloupe bird to this race, typical of Jamaica. No specimens from Haiti or Santo Domingo have been

available for study. Both Ridgway's specimens from Guadeloupe (Bull. 50, U. S. N. M., 1911, pt. 5, p. 706) and my series average slightly smaller than the Jamaican birds while the specimens from Dominica average larger.

Ridgway (*Loc. cit.*, p. 704) refers the Cuban bird to *N. niger niger*. The single specimen before me from Cuba, M. C. Z. 61113, is equally dark as the specimens from Jamaica and seems indistinguishable from them. It is included in the following table of measurements.

Measurements in Millimeters.

M. C. Z.	Locality	Sex	Wing	Tail	Exposed Culmen	Tarsus
61113	Cuba	♂	156	67.5	6.5	11.5
20446	Jamaica	♂ (?)	151.5	66		11
20447	"	♂	162	63	6	11
62034	"	♂	154	67	6	11
20448	"	♂	153.5	60	5.5	11
21445	"	♀	151	60	6	11.5
13615	Dominica	♂	155	67	6	11.5
66334	Guadeloupe	♂	147.5	59	5.5	11
66333	"	♂	149	62.5	6	11
13615	"	♀	149	62.5	5.5	11

The Black Swift is especially abundant on the edges of the "Grand Bois." It was observed at nearly every locality visited except the flat land of Grande Terre. The bird is called L'hirondelle de Montagne by the natives because it appears just before sunset flying in great flocks from the mountains. I found it to be wholly an early morning and late afternoon flier. None of my guides knew anything of its breeding habits. But since the bird always comes from and retreats to the deep rain forest it is not improbable that it may roost in some of the big hollow trees on the mountain slopes.

23. *CHAETURA ACUTA* (Gmelin).

Petit Martinet Noir. Hirondelle-Mouche.

Eleven specimens of both sexes from Goyave, August 29th and 30th.

The Lesser Antillean Swift was observed at only a few localities, first on July 4th at Ste. Claude flying with a number of Black

Swifts, and again on July 22d several were seen in an evening flight over Grand Étang, Deshaies. But at Goyave, August 29th the species was flying by day. Small flocks passed back and forth across a cow pasture throughout the heat of the day. These flocks remained in the same locality for several days and did not seem to be migratory. No flocks were observed in the evening, but scattered individuals were flying with the Black Swifts.

24. MELANERPES HERMINIERI (Lesson).

Tapeur.

Seven adults from Ste. Rose, July 16th–19th and eight adults from Goyave August 20th–September 1st.

Ridgway (Bull. 50, U. S. N. M., 1914, pt. 4, p. 12) has created a monotypic genus for this species. The tendency to split up the Antillean woodpeckers into separate genera was carried further still by Miller (Bull. Amer. mus. nat. hist., 1915, 34, p. 518) in his description of the Porto Rican form. There are, to be sure, some small differences between the Guadeloupe bird and any other species of *Melanerpes*, but I believe it is entirely a matter of individual opinion as to whether the Guadeloupe species should be separated from its mainland relatives and placed in a separate genus. It is perhaps worthy of note that in Antillean reptiles and amphibians we find most of the genera to be of wide distribution.

The Tapeur is certainly not a rare bird on the island but seems to be very local in distribution. It is confined to the hardwood belt covering the hills. Only once did I observe a woodpecker near a village. Then the bird was clinging to a half-decayed tree in front of the Gendarmerie at Ste. Rose.

The first time I became familiar with the Tapeur was in a sunny valley among the hills of Cluny. Every morning upon rising I would hear the roll of a woodpecker far away on some distant slope. Then a bird perhaps nearer at hand would answer until finally three or four would be rolling at once. Often they would call, or rather bray, and then the note reminded me of the warning cry of the Yellow-bellied Sapsucker (*Sphyrapicus varius varius*). There were many deserted nesting holes nearby, but none was lower than fifty feet from the ground.

In other parts of the island the species was less common, rare in fact on the west coast. Mr. Delphine Duchamp of Goyave believes the woodpecker had become more abundant about his plantation within the last ten years.

25. *EULAMPIS JUGULARIS* (Linné).

Gros-Colibri. Oiseau-Mouche à Gorge Rouge.

Four adults from the Soufrière June 26th-July 4th, and five adults from Ste. Rose July 8th-10th.

The Gros-Colibri is the commonest hummer on the island. It seems to prefer the higher altitudes. About the coffee plantations of Ste. Claude where the banana flowers were a further attraction this Red-throated Hummer is abundant. It likes to bask in the morning sun and often selects a roadside twig for a perch. The small boys set out straws smeared with gum on these perches and catch the bird as it alights. Like all of the island hummers this one is easily excited and comes readily to the "squeak." It then utters at short intervals a clear "seep."

On July 18th near Cluny I found a nest with its compliment of two eggs. The nest was larger than one of the Ruby-throat's (*Archilochus colubris*) but it was about the same in structure. The eggs were chalky white.

26. *SERICOTES HOLOSERICEUS HOLOSERICEUS* (Linné).

Colibri Bleu. Oiseau-Mouche Bleu.

Two adult males from Ste. Claude July 2nd and Goyave August 30th.

The Green-throated Hummer is the rarest of the three species of Colibri found in Guadeloupe. I observed it in the uplands associated with *Eulampis jugularis*, but never in the lowlands.

(27. *ORTHORHYNCUS EXILIS EXILIS* (Gmelin).

Fou-Fou. Oiseau-Mouche huppé.

One pair of adults from the Soufrière, June 26th and 29th, and one adult male from Ste. Rose July 12th.

In the rain forest the tiny Fou-Fou is one of the few birds which one is sure to meet. It is often very pugnacious and on several occasions, when I have excited it by "squeaking" it has darted almost into my face. Although the Fou-Fou is the smallest bird on Guadeloupe it will drive away Sucriers, Gros-Bees, and even Grives from its favorite honey tree. In spite of its tiny size, it makes a great deal of noise during one of these attacks,—a crackling volley of psist! psist!! psist!!! loud enough to frighten even a man. The species is by far the noisiest of the Guadeloupe hummingbirds.

28. TYRANNUS DOMINICENSIS VORAX (Vieillot).

Pipiri.

Five adults from Ste. Rose July 12th, 14th, and one from Goyave September 2nd.

Ridgway (Bull. 50, U. S. N. M., 1907, pt. 4, p. 708) states that *Tyrannus d. dominicensis* occurs in Guadeloupe. All of the six specimens, which I collected, are typical *Tyrannus d. vorax*. One, however, is smaller than the other Guadeloupian birds but larger than the average for the Greater Antilles. The occurrence of *Tyrannus d. vorax* in Guadeloupe is to be expected on zoögeographical grounds for the same race is found north as well as south of the island (*cf.* Riley, Smith. miscell. coll., Nov. 8, 1904, 47, p. 2).

The Pipiri is perhaps the most conspicuous if not abundant bird of the lowlands. It resembles the Kingbird (*Tyrannus tyrannus*) in that it selects a high perch overlooking some bit of pasture and from these sallies forth after the passing flies. As it darts out the snap of its bill may be heard for some distance. Of all the bird notes about the cane-fields, the one that catches a stranger's ear first is the sharp *pip-piree*, *pip-pirr-ee* of this bird. In the early morning the bird is especially active and its call-note seems to arise from every corner of the plantation. I imagined the bird received its name from its call but Ballet (L'histoire de la flore, la faune etc. de la Guadeloupe, Basse Terre, 1895, 1, 2, p. 21) says:—"Pipiri vient sans doute du mot breton pipirette, expression dont on se sert en Bretagne pour désigner l'aube ou piperette du jour."

29. MYIARCHUS OBERI OBERI Lawrence.

Pipiri Gros-Tete.

One immature male from Ste. Rose, July 11th.

The single specimen secured was one of the two birds of the species I saw on the island. The pair was observed in an area of deciduous scrub about four miles south of Ste. Rose. My guide, one of the best *chasseurs* of that village, said he had never seen the bird before on the island. The species was doubtfully recorded from Guadeloupe, and Ridgway (Bull. 50, U. S. N. M., 1907, pt. 4, p. 618) questions Guadeloupe as a locality for it.

30. BLACICUS BRUNNEICAPILLUS Lawrence.

Gobe-Mouche Brun.

One adult male from the Soufrière June 29th and eight adults and half-grown specimens from Ste. Rose July 12th-16th.

I found the Brown Flycatcher not rare in Guadeloupe, but rather locally confined to the clearings in the deep woods. It seems to prefer the solitude of the forest, for it only comes into the open when hawking flies.

31. ELAINEA FLAVOGASTRA MARTINICA (Linné).

Petit Pintade. Gobe-Mouche huppé.

Not a rare bird in the woody parts of Guadeloupe. Two specimens, both sexes from Ste. Claude, July 3d; two birds, one female and one unsexed from Ste. Rose July 19th; and five specimens of both sexes from the Soufrière June 29th.

Near the highest part of the island visited, I took my first specimen of Petit Pintade. Then in the heavy cover about Ste. Claude, July 4th and near Morne Rouge, August 22d I observed several scattered flocks of a few individuals. In the lowlands where large berry producing trees are absent this species was rare.

Clark (Proc. Bost. soc. nat. hist., 1905, 32, p. 208) has described the song at some length. Only on rare occasions did I hear the bird sing in Guadeloupe, and it was then a long clear whistle. In habits

this bird is very like a wood-warbler reminding one particularly of a Black-poll (*Dendroica striata*).

32. HOLOQUISCALUS GUADELOUPENSIS (Lawrence).

Holoquiscalus martinicensis Ridgway.

Merle. Bout de Petun.

Nine specimens, adults and half-grown males from Ste. Rose, July 12th-18th; four specimens from Basse Terre, July 3d.

I fail to find any characters by which to separate *H. martinicensis* from *H. guadeloupensis*. Ridgway (Bull. U. S. N. M., 1902, 50, pt. 2, p. 232) says of *H. guadeloupensis* "Similar to *H. martinicensis* but wing averaging slightly longer." His measurements for the wing of the male of *H. martinicensis* are:—119.4-124 (120.7) and for the female 102.4-108.5 (105.4). For the male of *H. guadeloupensis*, on the other hand, his wing measurements are:—119.9-124.5 (121.9), for the female 104.4-109.2 (106.7).

My averages for the wing of *H. guadeloupensis* are also slightly larger than those of *H. martinicensis*, but this difference is very small, and there is, apparently, no other distinguishing character. I do not believe a distinction can be made between the two forms, and it seems best to refer the Martinique bird to *H. guadeloupensis*. On geographical grounds alone there would seem to be a real difference between these two birds for the species has never been taken on Dominica, lying just between and in plain sight of Guadeloupe and Martinique. But if isolation has tended to make a distinction between the two forms, this distinction is, to my mind, at present not great enough to recognize two species.

Holoquiscalus martinicensis Ridgway.

M. C. Z.	Sex	Locality	Wing	Tail	Tarsus	Exposed Culmen
10895 ¹	♂	Martinique, F. W. I.	120.5	96	36	27.5
27688	♂	" "	118+	100+	35.5	27
28696	♂	" "	120	102	38-	28
28695	♀	" "	108-	87	34	24
11272	♀	" "	105	85	33	24
11273	♀	" "	104+	80	37-	25

¹ Coll. E. A. and O. Bangs.

Holotrisacus guadeloupensis (Lawrence).

M. C. Z.	Sex	Locality	Wing	Tail	Tarsus	Expsed Culmen
66571	♂	Guadeloupe, F. W. I.	123.5	104-	36	28
66570	♂	" "	119	100	35	29
66571	♂	" "	121	102.5	35	27.5
66572	♂	" "	120+	102+	37.5	27
66566	♀	" "	104.5	80	31.5	21+
66567	♀	" "	107.5	88	31	25.5
66568	♀	" "	106	80	32	21+
66578	♀	" "	105.5	83	30	24
14853	♀	" "	—	81	32-	24-

Although the Merle never ascends to any of the high pastures at the edge of the rain forest, it is still fairly abundant over the rest of the island. I did not meet with it at all during my stay at Ste. Claude, Vieux Habitants, Morne Rouge, or any of the other high regions I visited. But about the low plantations of Ste. Marie and Goyave it was very abundant. At Ste. Rose from July 12th-20th the Merle was seen nearly every morning in the Mango trees surrounding a large cow pasture. In fact wherever herds of cattle are grazing one may feel certain of seeing or hearing some Merles providing the altitude is not too great.

Ballet (*Loc. cit.*, p. 23) in speaking of the Merle says:—

"Cet oiseau vit par bandes nombreuses, aime à se percher sur les grands arbres, notamment sur les palmistes, se perche sur les boeufs pour dévorer les tiques et autres vermines dont ils sont couverts, est très familier, suit le laboureur, et, posé sur les boeufs, ou la charrue, se précipite sur les larves et les insectes mis à découvert par cet instrument aratoire. Sa chair n'est pas bonne. Aussi, grâce à son peu de goût, il a échappé à la destruction et rend à notre agriculture d'immenses services. Ses bandes multipliées couvrent la Grande-Terre et une partie de la Guadeloupe."

The notes of the Merle are as varied as those of the Starling (*Sturnus vulgaris*). When in flocks the Merle keeps up an incessant jabbering. Sometimes, especially in the early morning, the bird gives its true call-note, a double whistle of two syllables, the second rather prolonged. But it is the conversational jabbering which is most characteristic of the bird.

33. PYRRHULAGRA NOCTIS DOMINICANA Ridgway.

Père Noir. Gros-Bec.

Thirteen specimens, adults and half-grown, of both sexes from Ste. Claude July 3, and from Ste. Rose July 15th, 16th, and 20th.

When we consider the tendency of *Pyrrhulagra* to break up into island races in the Lesser Antilles, we might readily expect the Guadeloupe bird to be distinct. This series, however, is much too small to distinguish the Guadeloupe from the Dominica bird. My measurements fall within the limits shown by Ridgway's specimens (Bull. 50, U. S. N. M., 1901, pt. 2, p. 556).

The Père Noir is the common sparrow from the high woods to the mangroves. It is the only bird that is evenly distributed over the whole of Guadeloupe. Several of these birds were seen June 27th–29th at the "Club des Montagnards" near the crest of the Soufrière, others July 1st–4th about Ste. Claude, and then on July 20th it was seen again in equal abundance in the mangrove swamps about Ste. Rose. The natives apply the name Gros-Bec to both sexes while they reserve the name Père Noir for the male. The birds are often found in flocks in the dooryards of the houses. Its sharp chirp and clear song, pseep! pseep!! pseep!!! are characteristic sounds of the country villages.

34. TIARIS BICOLOR OMISSA (Jardine).

Olive. Mangeur d'herbes.

Two adults, male and female from Goyave, September 5th and 7th.

The grassquits of Grenada, the Grenadines, St. Vincent, and Barbados instead of being referable on Grenada and Barbados to *T. b. marchii*, and on the other islands to the more wide-spread *T. b. omissa* as believed by Ridgway (Bull. 50, U. S. N. M., 1901, pt. 1, p. 538, 541) really represent a well-defined race which is apparently confined to these southern islands of the Lesser Antilles. It may be distinguished at once from the two races mentioned by its different size and coloration, and it may be known as

Tiaris bicolor expectata, subsp. nov.

TYPE: M. C. Z. No. 13109, (E. A. & O. Bangs Coll.) from St. George, Grenada, June 19, 1904, Austin H. Clark. In measurements it is

smaller than *T. b. marchii*. The average of 14 males, and 9 females from Grenada and Grenadine, 4 males and 2 females from St. Vincent, and 6 males and 4 females from Barbados,—39 specimens in all are:—wing 51.3 (48–52.5); tail 38.2 (36–40); exposed culmen 9.1 (8.5–9.5); depth of bill 7.4 (7–8); tarsus 17.3 (15.5–18). While on the other hand a series of 39 specimens, 26 males and 13 females from Jamaica, representing *T. b. marchii*, the average is:—wing 52.4 (50–54.5); tail 40.6 (38.5–42.5); exposed culmen 8.9 (8.5–9.5); depth of bill 6.8 (6.5–7.5); tarsus 17.1 (16.5–17.5).

In coloration it differs widely from *T. b. marchii* in that the dark area of the breast is not sharply divided, but merges gradually into the white of the belly-region with often scattered spots in blotches of darker color, extending posteriorly along the sides of the belly and encroaching considerably into the white area.

It is similar to *T. b. omissa* but has a longer tail and different coloration. Clark (Proc. Bost. soc. nat. hist., 32, p. 286) considers both the Grassquit from Grenada and St. Vincent as referable to *T. b. omissa*. The series of skins before me, however, show that grassquits from Grenada, the Grenadines, Barbados, and St. Vincent differ from those of the other islands of the Lesser Antilles by having more white on the belly. The tails of the former birds are relatively longer averaging 38.2 against 37.1 of those of the latter. These characters are rather constant throughout and are sufficient, I believe, to distinguish separate geographical races.

I have examined a series of twenty-seven skins from other islands of the Lesser Antilles but fail to find any characters upon which to separate the bird occurring on the islands from St. Lucia to Porto Rico from the mainland specimens. It seems anomalous to find *T. b. omissa* in Tobago and Venezuela and then skipping Grenada, the Grenadines, and St. Vincent occurring again on the other islands of the Lesser Antilles. But until a larger series of skins can be examined it is perhaps premature to cite this as a case of convergent evolution.

Ridgway (Bull. 50, U. S. N. M., 1901, pt. 1, p. 539) records two specimens of *T. b. omissa* taken in Cuba. Since there are no other Cuban records I inquired into their authenticity. Mr. C. B. Cory, of the Field Museum, informed me by letter that the birds were given to him by Gundlach and Cory supposed that they came from Cuba. Like so many other of Gundlach's birds they were probably collected during one of Gundlach's three trips to Porto Rico. The Grassquit is not so abundant on Guadeloupe as in the northern Lesser Antilles. On Guadeloupe it is confined to the lowlands where it prefers the hot

road-sides. The bird is rather shy and upon approach it disappears quickly into the nearest thicket. Its monotonous call has something of the buzz of a locust and something of the call of the Sucrier in it.

35. *SALTATOR ALBICOLLIS* Vieillot.

Grive-Gros-Bec.

Twelve specimens, adults and half-grown from Ste. Rose July 12th to 16th; and from Goyave August 20th to September 4th.

I never met with the Grive-Gros-Bec during my stay on the west coast, but in the north and east of Guadeloupe I found that the bird was not rare. It usually frequents the small stands of hardwood on the mountain slopes. In the rain forest or about the plantations it was less often seen.

This species is the "Grive" most frequently shot. It is ranked as a game-bird in spite of its laborious movements. Its low chuckle, its stealthy but nevertheless clumsy approach by hopping from twig to twig and finally its loud whistle are all very characteristic. In flight and general habits the Grive-Gros-Bec reminds one most of a very young and awkward Pine Grosbeak (*Pinicolor enucleator leucura*).

36. *EUPHONIA FLAVIFRONS FLAVIFRONS* (Sparrman).

Perrouche. Perrique de Matouba.

Four adults, three females and one male, from the slopes of the Soufrière near Matouba taken June 28th.

The Mistletoe bird is confined to the steep and heavily wooded slopes of the interior. It feeds in flocks on soft fruits and berries. All four of the specimens taken had their crops stuffed with gelatinous coated fruit-seeds. The plaintive whistle of the Perouche is often heard in the deep, vine-covered gorges of the Soufrière but because of the bird's small size and its retiring habits one rarely catches a glimpse of this, the most beautiful of Guadeloupe birds. In fact the natives believe that at certain seasons of the year when the wild fruit is ripe, flocks of these tanagers fly over from Dominica. It seems more likely, however, that they had previously overlooked the bird.

37. PROGNE DOMINICENSIS (Gmelin).

Hirondelle de Dominique.

Six specimens of both sexes from Goyave, August 30th and 31st. This species is not rare about the low plantations of the east coast of Guadeloupe and of Grande Terre. The first bird I saw upon reaching Guadeloupe, June 22d, was a martin flying about the stern of the vessel. A flock seemed not only in color but in flight like great tree-swallows hovering overhead. On the west coast the bird was exceedingly rare and it was not until I had taken up my abode at Goyave that I really became acquainted with it. On warm moist evenings, so characteristic of the Windward Islands, widely scattered flocks of *Progne dominicensis* and *Nephocetes niger jamaicensis* would appear and skim over the cane-fields. During the heat of the day neither of these birds is visible. In the early morning especially along the waterfront I found this Martin rather abundant.

38. VIREOSYLVA CALIDRIS BARBADENSIS Ridgway.

Siffleur.

Five specimens from Goyave and the Soufrière taken the first week in July and the last week in August.

When passing through the patches of hardwood trees that skirt the deep forests one is sure to hear the whistle of this bird coming from the top of some lofty forest giant, and even among the scrubby growths of the lowlands one may often hear that same clear note. In writing of this bird Ballet (*Loc. cit.*, p. 22) says: —

“On lui a donné ce nom, parce qu’il imite parfaitement le sifflet de la voix humaine. Il se tient dans les bois. On croit toujours quand on l’entend que c’est un homme qui en appelle un autre. Il n’y a point d’étranger qui n’y soit trompé.”

This bird resembles the Red-eyed Vireo not only in its choice of a home but also in its actions, in its song, and its nest building.

39. COEREBA DOMINICANA (Taylor).

Sucrier.

Common in the cultivated regions. Ten specimens from the plantations about Ste. Claude and Ste. Rose.

I have examined a series of five adults of this species from Guadeloupe, four from Antigua and five from Dominica, and I find a considerable variation in both color and size. In adults from the same island the breast and belly varies from yellow-green to bright ochraceous while the upper parts differ considerably in their intensities. The specimens from Antigua have a constantly shorter tarsus, it averaging 17.2 mm. against 18.2 for those of Guadeloupe and 18.4 for those of Dominica. The other measurements are all within the limits of individual variation.

The white wing-spot does not seem to be a good specific character. In two of the specimens from Antigua, one from Guadeloupe, and two from Dominica this mark is just visible. Upon examining a series of nine adults from St. Croix and another of nineteen adults from Grenada and Grenadines I fail to find that the characters given by Ridgway (Bull. 50, U. S. N. M., 1902, pt. 2, p. 400) in his key hold true. Instead of *C. saccharina* having a smaller wing-spot than *C. newtoni*, it has in every case at least as large if not a larger one. Again, the superciliary stripes of the latter are not broader than those of the former, rarely, however, they come closer together on the head (2 specimens) and spread out so as to touch each other. *C. newtoni* may, however, generally be distinguished from *C. saccharina* by its lighter color, especially on the breast and throat, and again by its shorter tarsus averaging 18.3 mm. (fourteen specimens) against 19.1 for the latter.

Everywhere in the lowlands and as far up the mountain as the Grand Bois extends, the Honey Creeper is abundant. About the banana plantations I found them in greatest numbers, often nesting in the vicinity of the houses. When examining a flower this species is as acrobatic and agile as a nuthatch, while its undulating flight is much more graceful. The song is a characteristic little wheeze,—Zee! — Zee! Because of its great curiosity the Honey Creeper is often killed by the small boys. All the country gamins know how to “squeak up” this little bird into range of their blow-pipes or they can, at least, catch them by means of straws smeared with bird-lime.

40. DENDROICA PLUMBEA Lawrence.

Fauvette Grise.

Ten specimens, adult and half-grown, taken on the slopes of the Soufrière in the vicinity of, and above Ste. Claude, during the latter part of June and the early part of July.

The avifaunas of Guadeloupe and Dominica are by no means identical, nevertheless many of the small birds are the same on both islands. I have examined a large series of adults and young and find that this species does not differ in the two localities.

Adults from Dominica.

M. C. Z.	Sex	Wing	Tail	Exposed Culmen	Tarsus
60950	♀	61.5	49.5	10	21.2
13569	♀	61.8	51	10.5	21.2
13610	♀ (?)	64.5	52	10.5	21.5
28767	♂	60	51.5	10.5	20.5
28766	♂	60	50.5	10.2	20.5
13570	♂	67	56	11	22

Adults from Guadeloupe.

	Sex	Wing	Tail	Exposed Culmen	Tarsus
	♀	60.2	53.5	10.2	20.5
(albinistic)	♀	59.8	49	10.5	20
	♂	63	51	10	20.2
	♂	63.5	51.5	10.2	19.8
	♂	62.5	51.5	10.8	19.8
	♂	63.5	50.5	10.8	20.5
	♂	67	55.5	10.5	21.5

I never met this bird anywhere but in the deep woods. It is a true wood-warbler and as such does not descend into the lowlands unless following some extension of the forest. In the dense dripping woods that cover the sides of the Soufrière, it is often met with and is always one of the first birds to answer to the "squeak." At Ste. Rose where the heavy woods of Soffire are so near at hand, this little warbler may be found just outside of the town.

Camping near the top of the Soufrière, I found the bird common about the mountain streams. Near the base of the huge mass of denuded lava which forms the summit of this volcano, an albino female was taken. The head and neck are white, a series of white blotches extend down the back and sides while the rest of the plumage is the normal olive-grey.

41. *DENDROICA RUFICAPILLA RUFICAPILLA* (Gmelin).

Oiseau Jaune.

A common species in the lowlands. Fifteen specimens from immediate neighborhood of Goyave, Ste. Rose, and Ste. Claude taken on various days throughout July and August.

Clark (Proc. Bost. soc. nat. hist., 1905, 32, p. 294) says "The subspecies of this form, *D. r. ruficapilla* (Guadeloupe and Dominica), *D. r. rufivertex* (Cozumel Island), *D. r. flavida* (St. Andrew's) and *D. r. rufopileata* (Curaçao) appear all to fall within the range of individual variation, if we can judge from the great differences exhibited by a series of sixteen specimens of the closely related *D. capitalis* of Barbados. The only specimen from Cozumel Island which I have been able to examine, as well as three specimens from Dominica *** are inseparable from Grenadine examples." An examination of a large series of this species including the specimens taken by Mr. Clark as well as those collected by myself shows that the distinguishing characters of the described races have no more value than Clark gave them. It is clear that only one form should be recognized.

Among the mangroves, about the plantations and ascending the sparsely wooded hills this bird is common. Ober says of it (Proc. U. S. N. M., 1878, 1, p. 453) "with the two sparrows the bird is most commonly met with in the gardens and coffee plantations. In the latter, I find it chiefly in the pois douce trees, which, originally planted as wind-breaks for the coffee plants' protection, seam the hills all around in long rows." About Goyave and Ste. Rose I found it most common in the small plantations bordering the mangroves. It sometimes occurs in numbers upon the high uplands, but I have never taken it higher than Ste. Claude some two thousand feet above the sea. Its habits, nesting, and song are all very much like those of the Yellow Warbler (*D. aestiva aestiva*) but unlike this species it seems

to prefer the hot scrubby fields to the streams and swamps, although some are always to be found about the mangroves.

42. *TROGLODYTES GUADELOUPENSIS* (Cory).

Rossignol.

One adult female taken July 13th, near Ste. Rose.

This species is now practically extinct owing to the Mongoose. Twenty-five years ago the bird was widely distributed all over the island, and like the House Wren would frequent the gardens about the villages. For more than ten years it has been extremely rare and local, found only in the high woods which have been more or less cut over. Although I visited over a dozen distinct localities on Guadeloupe it was only seen on the wooded hills back of Ste. Rose.

It was in the evening, shortly after the sun had set that I heard for the first time the song of this wren. It was long and varied with more of a warbler quality than that of a wren. But the profusion and bubbling merriment of the song could be given only by a wren. As I advanced through the brush, the bird darted off to a fallen log, ran nimbly along it, hopped into a low tree and began to flit upwards from one branch to the next till it had reached the top. Then it flew off to another tree to again start its spiral climb upwards. When finally shot it proved to be a female, and although unsuspected until the specimen was dissected I had probably been following a pair of wrens and not a single individual.

43. *CINCLOCERTHIA RUFICAUDA TREMULA* (Lafresnaye).

Trembleur. Grive Trombleuse.

Eight specimens, adults and half-grown individuals, taken throughout July and the latter part of August from the Soufrière, Ste. Rose, and Goyave.

Confined entirely to the deep woods, this bird is one of the few species one meets while struggling through the forest. When flushed from the ground where it is habitually to be found, it flits up to a low branch and begins to shake as if in the grasp of a tropical fever. At

the same time it jerks the tail nervously up and down just as a Spotted Sandpiper does, accompanying these movements by a hobbing of its head in every direction. My guides said that the small heaps of snail-shells quite often found upon the forest-floor were made by this bird which feeds almost entirely upon the snails. The species is so rare and local that I was unable to verify this assertion.

The Mongoose, now found in every part of the island, has almost exterminated it. The greater part of my time on the island was spent in the deep woods where only a few were found. If one moves very quietly to a suitable place for "squeaking" this bird may be easily induced to come within gunshot, but I have never heard it utter any answering call except and only rarely a low guttural sound. The coloration and actions of this bird are in keeping with its environment. Its uniform dark plumage makes it invisible among the dark, decaying leaves of the forest-floor, while its silent flitting to and fro are in harmony with the great hush of a tropical jungle. The peculiar trembling habit is probably some sort of a warning motion, but during this action the bird is not very unlike a bunch of dried leaves shaking in the wind.

44. CICHLHERMINIA HERMINIERI (Lafresnaye).

Cichlherminia coryi Ridgway.

Grive à Pieds Jaunes.

Twenty-four specimens from the region about Ste. Rose and Goyave taken during the latter part of July and August.

This series of specimens together with Lafresnaye's and Ridgway's types make it clear that *Cichlherminia coryi* Ridgway (Smiths. misc. coll., 1904, 47, p. 112) is the adult of *Cichlherminia herminieri* (Lafr.). These specimens show a gradual change from one to the other kind of plumage, a change which is undoubtedly one of age. Lafresnaye's original labels for the types of these two species show that all the birds came from Guadeloupe. The specimens were sent to Lafresnaye by Dr. F. L'Herminier in 1844, and are now together with their original labels in the M. C. Z.

Ober (Proc. U. S. N. M., 1878, 1, p. 452) in his field-notes on this bird writes: —

"A resident of the wooded hills and mountains; found in Dominica

in the same localities as the Perdrix, woods sufficiently free from underbrush to afford places for scratching. The places where they have disturbed the earth by scratching are frequently seen in the paths, where the woods are thick, and in the open forest. They will come quickly at the *call* if within hearing, but are shy, flying cautiously from tree to tree never long at rest."

According to my experience they are extremely local requiring a thick wet forest but not one so thick as the rain forest of the high ranges. In Guadeloupe this species is practically unknown on the west coast. To the north of the island it is only back in the hills of Bellevue that the bird is found. In the south and east I found it not rare about the foothills of Morne Rouge, near Goyave, and again at Ste. Marie.

As Ober has said this species is a ground inhabiting bird. For this reason it was one of the first victims of the Mongoose. Since as Ballet (*L'histoire de la flore, la faune etc. de la Guadeloupe — Basse Terre* 1895) expresses it "*la chair est la plus tendre et la plus delicate*," the natives for many years have set out great hoops each with sixty to a hundred snares attached. The bird while scratching would become entangled and would eventually be found and taken to market where it would be sold for five cents. Now everything is changed, the Mongoose has nearly exterminated the species while those few individuals that remain seem to have adapted themselves to the new conditions, and if one can believe in hear-say are on the increase. This change is probably a forsaking of the ground for the low dense shrubbery. I did not once surprise the bird scratching among the leaves. Often I have heard its bell-like note coming from high up in the trees. It is a very characteristic call, mellow, resonant, and repeated at frequent intervals.

45. *ALLENIA APICALIS* (Hartlaub).

Grive Fine. Grive Cendree.

Thirteen specimens from five different localities on Guadeloupe, taken during both July and August. This species is not rare wherever the environment is suitable.

An examination of a large series of specimens from the islands of the southern Lesser Antilles shows a tendency for this species to

become darker in color as it progresses southward. This difference does not seem to be seasonal or sexual. Between any two adjacent islands there is no marked difference in color, but the birds from Barbados and Grenada are distinctly darker than those from Guadeloupe. Because of this intergrading, it seems hardly advisable to draw a line between the northern and southern birds by separating a race.

J. H. Riley (Smith. misc. coll., 1904, 47, p. 288) has noted this slight difference and in speaking of the Barbuda and Antigua birds says: —

“The above series, when compared with a series from the other Lesser Antilles, averages more olive brown above, without the reddish cast in the plumage seen in the other series before me. The measurements are also slightly larger as the following will show: Four males from Barbuda and Antigua average: wing, 129; tail, 104.6, culmen, 20. Seven males from Saba south to St. Vincent average: wing, 121.3; tail, 95.6; culmen, 19.4.”

I find the Guadeloupe bird compares favorably in measurements with the Barbuda-Antigua birds. Three males from Guadeloupe average: — wing, 121.3; tail, 93.6; exposed culmen, 18.3; tarsus, 29.2. Three females from Guadeloupe average: — wing, 124.9; tail, 98; exposed culmen, 18.8; tarsus, 31.

The measurements of the Dominica birds, on the other hand, fall well within the range of variation in a series of twenty birds from the islands to the south as far as Grenada. Three males from Dominica average: — wing, 114.6; tail, 90.5; exposed culmen, 18.8; tarsus, 28.3. It seems evident then that if a southern race were to be separated from a northern the Guadeloupe bird would be included in the northern and the Dominica bird in the southern. Such a splitting up of races on these two closely associated islands is not at all the rule of subspecific differentiation in the avifauna of the Lesser Antilles. On Guadeloupe this species is the commonest of the three Grives, but I did not meet with it at all during my short stay on some of the more northern islands. It prefers the borders of woodlands made up of pure stands of deciduous trees or again the scrubby upland fields; still it is not rare even in the deep woods wherever there is a clearing formed by a tree which has crashed down.

The song of this bird consists of a few high notes uttered slowly and deliberately, generally from the top of some small tree standing at the edge of a clearing. The birds congregate only when feeding on the small fruit-trees, and it is rare that you find them together.

46. MARGAROPS FUSCATUS DENSIROSTRIS (Vieillot).

Grosse Grive. Grise Corossol.

Eleven specimens from the deep woods near Ste. Rose, the Soufrière, and Goyave taken in the latter part of July and the latter part of August.

Few birds of Guadeloupe are more strictly confined to the deep woods than this species. Very shy and retiring in habits it seeks the tallest trees of the rain forest. On my homeward voyage from Guadeloupe I was greatly surprised to find the closely related *Margarops f. fuscatus* in the streets of Christiansted, St. Croix; for I associated such a bird with anything but the noise and bustle of traffic. Perhaps the lighter color of this form to the north has been brought about by its open and sunny habitat.

The Grosse Grive is considered throughout Guadeloupe as one of the best game-birds to be ranked even with the Ramier and Perdrix; and since it lives on the roof of the tropical forest covering the higher parts of the island, the hunters are put to considerable trouble to obtain it. When disturbed the bird utters a sharp cluck, entirely different from the alarm-note of any other bird of the region. The cluck is repeated at intervals and is accompanied by a simultaneous lowering and jerking upwards of the tail. The bird's song is loud and clear consisting of a series of long whistles. In attracting this Grive, the natives give a long call of low vibrant sounds,—shush! shush!—not unlike the puffing of a distant locomotive. They explain this call as the imitation of a mother Grive hovering over a young one which has fallen from the nest or been overtaken by some other calamity.